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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,758	12/13/2001	Kunihiro Shima	108384-00036	3728

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,758

Applicant(s)

SHIMA, KUNIHIRO

Examiner

John J. Zimmerman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

FIRST OFFICE ACTION

Information Disclosure Statement

1. The Information Disclosure Statement filed with this application has been considered.

An initialed form PTO-1449 is enclosed with this Office Action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota (EP

Application 0589609 A1) in view of Hodge (U.S. Patent 2,567,560) and Sakai (U.S. Patent 5,322,574).

4. Hirota discloses a method of optimizing the electrical conductivity and strength properties of a copper alloy containing 10-20 at.% Ag (e.g. see page 3, lines 10-16) by rapidly cooling the cast article followed by cold-working and annealing at 250-350°C more than 1 hour (e.g. 1-5 hours at 350°C). Further additional cold-working and additional heat treatment steps to optimize both the electrical conductivity and strength properties of the Cu-Ag article follow the

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initial working and annealing steps (e.g. see page 3, line 17 - page 4, line 3). Hirota may differ from the claims in that Hirota's cold-working steps may not be specifically specified as rolling steps, but the Hodge reference clearly shows that cold-working (here applied specifically to optimizing the electrical conductivity and strength of Cu-Ag alloys) is understood by one of ordinary skill in the art to alternatively include the cold-working operations of drawing and rolling (e.g. see column 3, lines 3-14). In view of Hodge, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alternatively process the Cu-Ag alloy of Hirota by either drawing or rolling operations because it is clearly understood by those of ordinary skill in this art that either type of these cold-working processes can be used during optimization of the electrical conductivity and strength properties of Cu-Ag alloys. In view of the fact that these alloys are used in both wire and plate forms, selecting the type of cold-working process that best suits the shape of the workpiece is well within the level of ordinary skill in the art. Regarding the steps of measuring the workpiece properties to establish a conductivity-annealing temperature curve and strength-annealing temperature curve to optimize the electrical conductivity and strength of the final Cu-Ag product, the prior art clearly recognizes that the working and annealing steps optimize these properties and merely determining the optimum temperature, time and working parameters for individual workpieces is a matter of routine experimentation and not a patentable distinction over the prior art. It is not clear what type of atmosphere Hirota uses during his heat treatments. On this issue, Sakai is cited to further show the pervasive recognition in the Cu-Ag alloy art of the optimization of tensile strength and electrical conductivity for Cu-Ag alloys by annealing treatments (e.g. in a range 300-500°C) and Sakai also uses multiple stage cold-working and heat treatments and shows that heat treatments

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are typically done in a vacuum atmosphere or an inert gas atmospheres (e.g. column 2, lines 42-56). In view of Sakai, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use vacuum atmosphere or an inert gas atmosphere during the heat treatments of Hirota, because Hirota is not clear about the type of atmosphere used during heat treatment and Sakai shows that vacuum atmospheres and inert gas atmospheres are the types atmospheres used in the art during heat treatment of Cu-Ag alloys.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (U.S. Patent 5,322,574) in view of Hodge (U.S. Patent 2,567,560).

6. Sakai discloses the optimization of tensile strength and electrical conductivity for Cu-Ag alloys by annealing treatments (e.g. in a range 300-500°C) and by using multiple stage cold-working and heat treatments. Sakai further shows that the heat treatments are typically done in a vacuum atmosphere or an inert gas atmospheres (e.g. column 2, lines 42-56). Sakai may differ from the claims in that Sakai's cold-working steps may not be specifically specified as rolling steps, but the Hodge reference clearly shows that cold-working (here applied specifically to optimizing the electrical conductivity and strength of Cu-Ag alloys) is understood by one of ordinary skill in the art to alternatively include the cold-working operations of drawing and rolling (e.g. see column 3, lines 3-14). In view of Hodge, it would have been obvious to one of ordinary skill in the art at the time the invention was made to alternatively process the Cu-Ag alloy of Sakai by either drawing or rolling operations because it is clearly understood by those of ordinary skill in this art that either type of these cold-working processes can be used during

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optimization of the electrical conductivity and strength properties of Cu-Ag alloys. In view of the fact that these alloys are used in both wire and plate forms, selecting the type of cold-working process that best suits the shape of the workpiece is well within the level of ordinary skill in the art. Regarding the steps of measuring the workpiece properties to establish a conductivity-annealing temperature curve and strength-annealing temperature curve to optimize the electrical conductivity and strength of the final Cu-Ag product, the prior art clearly recognizes that the working and annealing steps optimize these properties and merely determining the optimum temperature, time and working parameters for individual workpieces is a matter of routine experimentation and not a patentable distinction over the prior art.


Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited art serves to further establish the level of ordinary skill in the art at the time the invention was made.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (703) 308-2512. The examiner can normally be reached on 8:30am-5:00pm, M-F. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
September 5, 2003